

*LASIONECTES ENTRICHOMA*, NEW GENUS, NEW  
SPECIES, (CRUSTACEA: REMIPEDIA) FROM  
ANCHIALINE CAVES IN THE TURKS AND  
CAICOS, BRITISH WEST INDIES

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*Abstract.*—*Lasionectes entrichoma*, a new genus and species of remipede from the Turks and Caicos, British West Indies, is described. It possesses characters which warrant its placement into a new genus of the crustacean class Remipedia.

In 1979, *Speleonectes lucayensis* Yager, the first species representing the new class of Crustacea, Remipedia, was collected from Lucayan Cavern, an anchialine cave on Grand Bahama Island in the northern Bahamas. Subsequent exploration of other caves in the West Indies has resulted in the discovery of the new genus and species of remipede described here, as well as several other new species of remipedes to be described later.

Although a separate country politically, the Turks and Caicos are geographically a southeast extension of the chain of islands making up the Bahamas. Their geologic make-up is also similar, in that the islands are the tops of exposed shallow water carbonate banks separated by deep water channels.

Old Blue Hill Cave, the type-locality for these new remipedes, is located on the island of Providenciales. The submerged cave system is developed in an inland ridge and has two entrances along the collapsed margin of a large sinkhole. The western opening is in a large, shallow, brackish pool which slopes abruptly down along the north margin of the sinkhole into the dark passages of the cave system. The pool is entirely open to sunlight, and is rich in organic material which has turned the water brown and reduced the level of visibility. The pool supports a rich biota of algae, the cyclopoid

copepod *Apocyclops* (*Metacyclops*) *distans*, the amphipod *Spelaeonicippe provo* Stock and Vermeulen, and a very dense population of the caridean shrimp *Typhlatya garciai* Chace. The new remipede is found in the twilight zone which begins at about 5 m, and in the dark, deeper passages of the cave which have been explored to about 20 m. The eastern entrance into the cave system is at the bottom of a narrow, dimly illuminated fissure. In contrast to the western entrance, the water in this pool is very clear and the numbers of *Typhlatya* are greatly reduced from thousands of individuals to less than a hundred. The new remipede is relatively abundant, especially when compared to *Speleonectes lucayensis*. Hundreds of individuals have been seen while cave diving in both entrances of this cave system.

*Lasionectes*, new genus

*Diagnosis.*—Second maxilla and maxilliped subchelate and distinctly more robust than first maxilla; terminal segments bearing trifold claw with comb-like row of spinules between large central spine and two flanking spines; both appendages with short setae along entire medial margin.

*Etymology.*—From the Greek *lasios* meaning hairy, and *nectes* meaning swimmer; a reference to the prevalence of fine

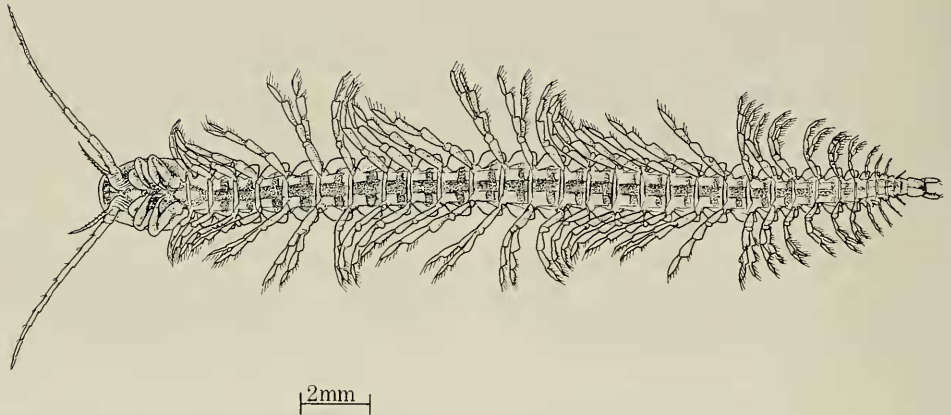


Fig. 1. *Lasionectes entrichoma*: Ventral view of animal showing swimming position.

hair-like setae on the second maxilla and maxilliped. Gender masculine.

*Type-species*. — (By monotypy) *Lasionectes entrichoma*, new species.

*Lasionectes entrichoma*, new species

Figs. 1–3

*Type-material*. — Holotype. Adult, 31.5 mm, USNM 216978; in brackish water, Old Blue Hill Cave, Providenciales Island, Turks and Caicos, British West Indies, 6 Apr 1983. — Paratypes, 39 specimens, both juvenile and adult, from Old Blue Hill Cave and Airport Cave on Providenciales Island, and from Cottage Pond, Middle Caicos Island, Turks and Caicos, B.W.I., Coll. J. Yager and D. Williams. Retained for further studies in the collections of the San Diego Natural History Museum.

*Diagnosis*. — With characters of the genus.

*Description*. — Cephalon small, about 13% total body length (Fig. 1). Cephalic shield somewhat tapered anteriorly and folded over anterior margin of cephalon. Maximum of 32 postcephalic trunk segments; first trunk segment short, with greatly reduced pleura, partly covered by cephalic shield; pleura of trunk segments posterior to first well developed, projecting laterally, reduced in size anterior to anal segment. Trunk sternites with distinct transverse bars, not developed

as plates; bar on segment 14 with large triangular process or flap on either end adjacent to limb base and covering genital pore; transverse bars posterior to segment 14 and continuing to about segment 24; thereafter developed as small triangular processes, becoming more prominent posteriorly in the series. Anal segment about as wide as long, anus terminal; caudal rami slightly less than length of anal segment, with 9 moderately long terminal setae and 2 distomedial setae (Fig. 2J).

Frontal filaments (Fig. 2A) small, rod-like, anteromedial to first antenna, with thumb-like process on posteromedial surface. Antenna 1 (Fig. 2B) large, well developed, biramous. Basal segment of peduncle enlarged, bearing 3–4 rows of densely packed, long, lash-like esthetascs draped posteriorly over antenna 2 toward labrum. Dorsal ramus long, with 12 segments; ventral ramus about one-half to two-thirds length of dorsal ramus, 8–9 segments; segments of both rami slender with fine hair-like setae along ventral margins and in tufts distoventrally; distal segment of both rami with 4–6 terminal setae.

Antenna 2 (Fig. 2C) biramous, well developed, moderate in size, not extending beyond cephalic shield. Two-segmented propod, medial margins of which bearing short simple setae. Three-segmented endo-

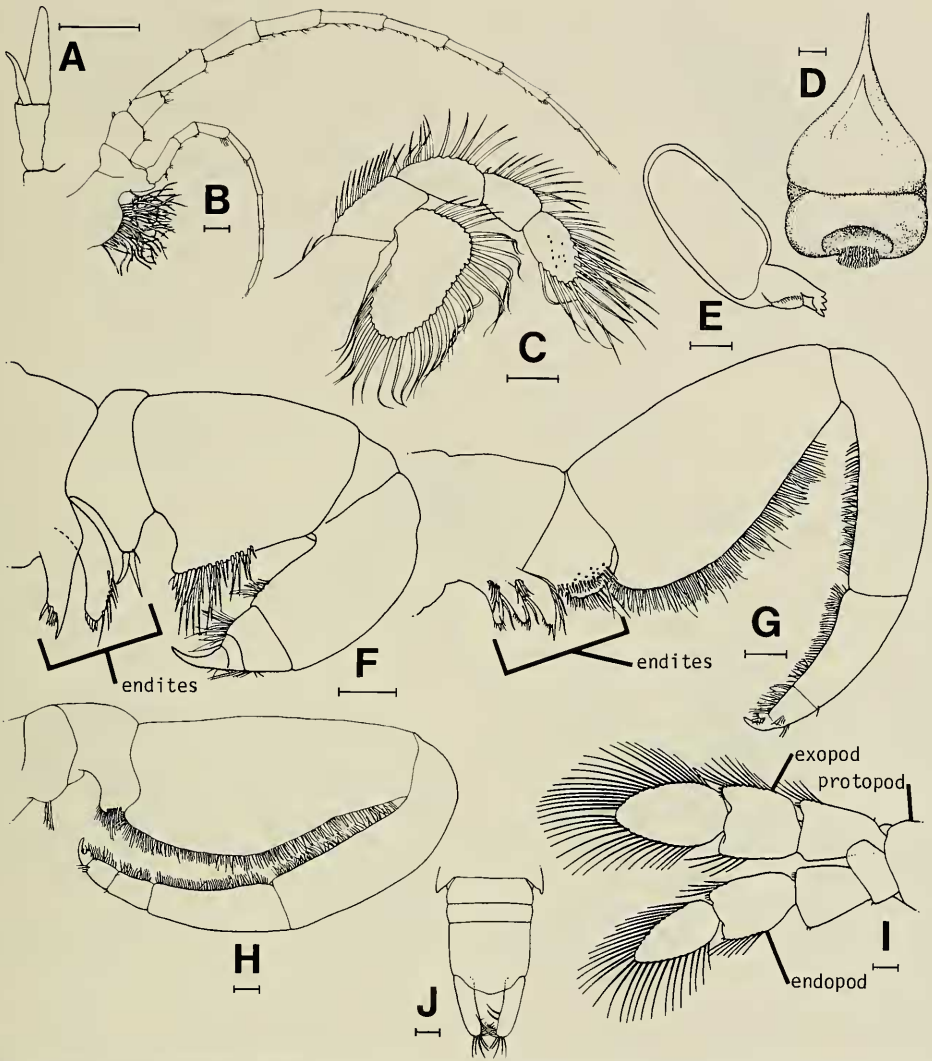


Fig. 2. Left appendages and related structures of *Lasionectes entrichoma*: A, Frontal filament; B, Antenna 1; C, Antenna 2; D, Labrum; E, Mandible; F, Maxilla 1; G, Maxilla 2; H, Maxilliped; I, Tenth trunk limb; J, Terminal part of body with caudal rami. Scales = 0.2 mm.

pod; first segment with about 13 plumose setae laterally, second segment with about 11 or 12, third segment with about 24 along entire margin and those most distal forming double row. Exopod a single, large, oval scale with about 35–40 long plumose setae along entire margin.

Labrum (Fig. 2D) a large fleshy lobe, narrow anteriorly, broad posterior section with transverse groove and fossa with densely

packed short ribbon setae. Mandibles asymmetrical. Right mandible (Fig. 3B) with 3-cusped incisor process and 3-cusped lacinia mobilis. Left mandible (Figs. 2E, 3A) with 4-cusped incisor process and crescent-shaped lacinia mobilis. Molar processes densely spinose, semi-arcuate. Paragnaths round, flattened lobes, lateral and posterior to mouth, covered with fine ribbon setae.

First maxilla (Fig. 2F) 6-segmented, uni-

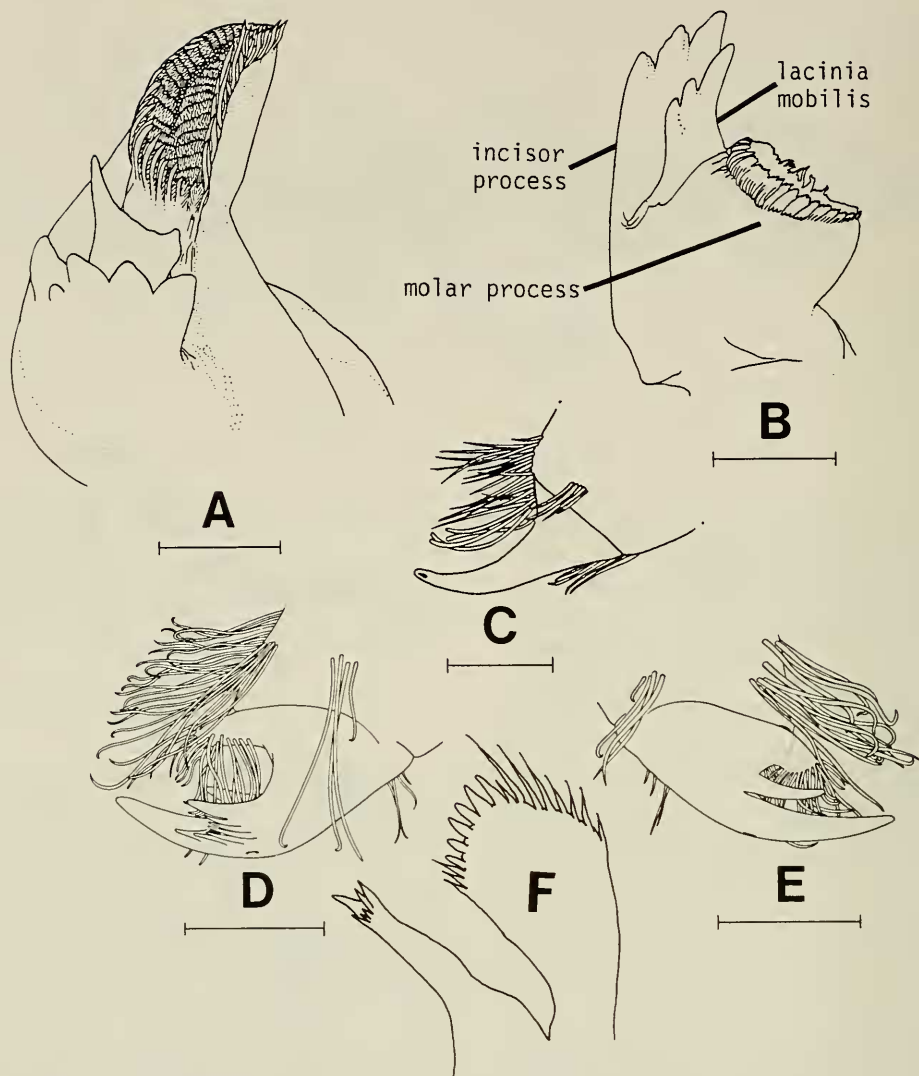


Fig. 3. Appendages of *Lasionectes entrichoma* in greater detail. A, left mandible; B, right mandible; C, Maxilla 1, tip; D, Maxilla 2 anterior view; E, Maxilla 2 posterior view; F, Maxilla 1 endites of first segment. Scales = 100  $\mu\text{m}$ .

ramous, subchelate, robust. First or proximal segment with 2 well developed endites (Fig. 3F); proximal endite terminates ventro-posteriorly in long stout spine, with 4-6 stout spine-like setae dorsally; distal endite a broad, plate-like flap with 6 short, stout, spine-like setae along crest, flanked by many tiny setae, 8 short to long simple setae on anterodistal margin and 4 on pos-

terodistal margin. Second segment with cone-like endite terminating in 2 robust spine-like setae and 1 or 2 small, simple setae. Third segment robust, with medial, subtriangular, double-crested endite bearing dense row of long, simple setae along each crest, and 1 short, stout terminal spine at apex of endite; anterior crest row with about 16 large setae, slightly longer than

posterior row of about 24 short to moderate setae. Fourth segment long, robust, with about 8 simple setae on distomedial half of segment and 2 clusters of 8–10 simple setae on antero- and posterodistal margins. Fifth segment short, with 2 distal clusters of about 12 simple, moderately long setae on anterior and posterior medial margins and 2 distal clusters of about 6 on anterior and posterior lateral margin. Sixth segment (fig. 3C) very short, terminating in single, long, talon-like claw with large terminal pore; tuft of about 10 long, fine, simple setae at medial base of claw. Principle flexion point of appendage between segments 3 and 4, with segments 4–6 cradled in trough between double rows of setae on segment 3 when flexed. Secondary flexion occurring between segments 2 and 3, with 2 large setae of segment 2 held in opposition to apex of subtriangular endite of segment 3 during flexion.

Second maxilla (Fig. 2G) 7-segmented, long, about twice the length of first maxilla, uniramous, subchelate; first segment with 3 digitiform endites increasing in size distally, 2 small, subconical lobes posteriorly associated with second and third endites each bearing 3–5 short to moderate setae; first endite small, apex with 1 short, terminal spine and about 4–6 tiny hair-like setae, row of 4–6 small to moderate, simple setae on lateral margin; second endite with 1 moderately long terminal spine, about 6–8 small, simple, setae apically, a row of about 3 moderate, simple setae on lateral margin; third endite with 1 large spine terminal seta, 8–10 small, simple apical setae, a row of about 3–5 moderately long, simple, lateral setae. Segment 2 with large, medial, thumb-like lobe with clusters of moderate to long, simple setae in 2 rows, the anterior row of setae longer. Segment 3 long, wide, with subtriangular endite bearing 2 rows of dense, short, simple setae along entire medial margin of segment. Segments 4, 5, and 6 with dense rows of subequal setae along entire medial margin of segments; segment 5 with 1–2

simple setae on distolateral margin; segment 6 short, with 2 clusters of about 4 moderately long, simple setae on anterior and posterior distolateral margin and 2 clusters of about 8 long, fine setae on anterior and posterior distomedial margin. Segment 7 (Figs. 3D, 3E) very short, terminating in complex trifold claw with a central long spine and 2 shorter flanking spines, a comb-like row of several smaller spines between the central spine and posterior flanking spines. Thumb-like pad with fan-like setose margin opposed to claw.

Maxilliped (Fig. 2H) similar to second maxilla but markedly longer and more robust, with at least 8 segments. Segment 1 with several weakly developed median lobes, the most prominent of which with about 5 terminal, long, simple setae. Segment 2 with small, thumb-like lobe with two rows of clustered setae in V-shape, the anterior row with short to moderate simple setae, posterior with short, hair-like setae. Segment 3 long, wide, with subtriangular endite bearing 2 rows of setae along medial margin as in second maxilla. Segments 4, 5, 6 and 7 with dense rows of subequal setae as in second maxilla. Segment 6 with 1 short seta distolaterally. Segment 7 with several moderately long setae on anterior and posterior distolateral margin and 2 clusters of about 6 on anterior and posterior distomedial margin. Segment 8 with terminal trifold claw complex as in maxilla 2.

Trunk appendages (Fig. 2I) biramous, setose, laterally directed paddles. Protopod fleshy, exopod 3-segmented, endopod 4-segmented. Distal segments of both rami oval in shape.

*Etymology.* — From the Greek *entrichoma* meaning eyelash, a reference to the long lash-like setae on the base of the first antenna; used as a noun in apposition.

*Remarks.* — Additional specimens of *Lasionectes*, were collected from Airport Cave, another anchialine habitat on Providenciales. Associated fauna were a new family of caridean shrimp (C. W. Hart, Jr., pers.

comm.), a new genus of leptostracan, *Speonebalia cannoni* Bowman, Yager, and Iliffe, 1985, and the amphipod *Spelaeonicippe provo*. Cottage Pond on Middle Caicos Island was also found to be inhabited by *Lasionectes* and another as yet undescribed species of remipede. Although blind cave fish are known from many West Indian caves, they are noticeably absent in the abovementioned caves.

While *Lasionectes* bears some relationship to *Speleonectes lucayensis* Yager, 1981, the differences between the two taxa seem too great to maintain the two species within a single genus. The two species differ in the size ratio of the feeding appendages. The first maxilla of *Speleonectes* is the most robust when compared to the second maxilla and maxilliped. *Lasionectes* has a small first maxilla when compared to the second maxilla and the very robust maxilliped. With additional remipede material now available from other West Indian caves and also the Canary Islands, it will be possible to assess the relationships within the group in greater detail.

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